Valuing the Ecosystem Services of Southern Maine Watersheds

Project Location

Wells National Estuarine Research Reserve, Maine

Project Lead

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Targeted End Users and Products

- *Final project report*
- *Ecosystem Services and Riparian Land Management in the Merriland, Branch Brook and Little River Watershed*
- *Webinar: Valuing ecosystem services*
- *Mental models research summary*
- *Choices for our Land and Water: A Survey of Residents*

Project Partners

- *George Perkins Marsh Institute*
- *NOAA's Office for Coastal Management*
- *Town of Wells*
- *City of Sanford*
- *Kennebunk, Kennebunkport, and Wells Water District*
- *Laudholm Trust*
- *Maine Sea Grant*
- *Maine Nonpoint Education for Municipal Officials*
- *Maine Drinking Water Program*
- *Maine Department of Inland Fisheries and Wildlife*
- *Maine Department of Environmental Protection*
- *Mount Agamenticus to the Sea Conservation Initiative*
- *Piscataqua Region Estuaries Partnership*
- *Rachel Carson National Wildlife Refuge*
- *Southern Maine Commission*
- *Town of Kennebunk*
- *University of New England*

About the Science Collaborative
The National Estuarine Research Reserve System's Science Collaborative supports collaborative research that addresses coastal management problems important to the reserves. Learn more at *www.nerrs.noaa.gov.*

Overview

Along the coast of southern Maine, the need to conserve natural buffers in order to protect rivers and wetlands has become a focal point for tensions between development and conservation interests. In this rapidly developing landscape, decision-makers often feel they must choose development over conservation or restoration to support local economies. While there is scientific evidence that underscores the value of protecting natural buffers around sensitive water bodies, local decision-makers need additional place-based, economic information about the ecosystem services that these lands provide and the range of tradeoffs that are implied in related land use decisions. A team led by the Wells reserve addressed this need by working with local, state, and federal stakeholders to better understand, measure, and communicate how southern Mainers value natural buffers and the tradeoffs they are willing to make to protect these critical resources for the future.

Project Benefits

- This project provided crucial information about watershed ecological conditions and ecosystem service benefits and tradeoffs related to land use decisions, as well as defensible estimates of social values associated with riparian and wetland areas in southern Maine.
- Built reserve system capacity to integrate ecological, social, and economic data to guide land use and policy by developing and sharing templates to apply ecological and economic ecosystem service valuation methods in other places.
- Conducted training workshops with the Mission-Aransas reserve and researchers from Texas A&M University focused on stakeholder engagement best practices and transfering the findings and tools from this project to other reserves and coastal management partners.
- The team also worked with education coordinators from the Wells, Narragansett, and Waquoit Bay reserves to develop a Teachers on the Estuary workshop based on ecosystem services.

Project Approach

The Wells reserve and Clark University led an interdisciplinary team of researchers and stakeholders to develop a framework to characterize and measure the impacts of riparian and wetland management decisions on the ecosystem services that buffers provide in the Wells reserve and surrounding watershed.

- Data integration: The team investigated the impacts of forested riparian buffers on stream ecology and integrated this information with economic data to describe and quantify the tradeoffs associated with different management decisions related to riparian buffers and wetlands.
- Stakeholder engagement: The team held stakeholder focus groups to help define the links between ecological conditions, ecosystem services, and stakeholder values, and they conducted interviews to model stakeholders' understanding of ecosystem services.
- Policy and management: The team combined interview responses with ecological data and policy information to inform a stakeholder survey about ecosystem service tradeoffs, policy choices and land management alternatives. From this information they developed high-impact, science-based communication strategies and decision support tools to promote future sustainable management of riparian and wetland areas.